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**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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*Ex parte* DAVID W. CANNELL, NATALYA FADEEVA, and  
NGHI VAN NGUYEN

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Appeal 2008-2124  
Application 09/614,118  
Technology Center 1600

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Decided: May 23, 2008

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Before TONI R. SCHEINER, ERIC GRIMES, and LORA M. GREEN,  
*Administrative Patent Judges.*

GRIMES, *Administrative Patent Judge.*

**DECISION ON APPEAL**

This is an appeal under 35 U.S.C. § 134 involving claims to a hair treatment method. The Examiner has rejected the claims as obvious and including new matter. We have jurisdiction under 35 U.S.C. § 6(b). We reverse the new matter rejection but affirm at least one of the obviousness rejections with respect to each claim.

## DISCUSSION

The Specification discloses “methods that provide protection benefits to keratinous fibers, including hair, eyelashes, and eyebrows, using compositions comprising C3 - C5 monosaccharides” (Spec. 1). “In one embodiment of the invention, a C3-C5 monosaccharide or a mixture of C3-C5 monosaccharides is present in the compositions . . . in an amount ranging from 0.01% to 5.00% relative to the total weight of the composition” (*id.* at 14).

### 1. CLAIMS

Claims 30-56 are pending and on appeal. Claims 30, 33, and 47 are representative and read as follows:

30. A method of protecting a keratinous fiber from extrinsic damage or repairing a keratinous fiber following extrinsic damage comprising

- applying to said keratinous fiber a composition comprising at least one sugar chosen from C3 to C5 monosaccharides and derivatives thereof; and
- heating said keratinous fiber to at least 45°C,

wherein said at least one sugar is present in an amount effective to protect said keratinous fiber or repair said keratinous fiber,

- further wherein said composition is applied prior to said heating or during said heating,
- wherein protecting a keratinous fiber means preserving a greater degree of the  $\alpha$ -structure and/or the tensile strength of the keratinous fiber following treatment of the keratinous fiber with said composition as compared to not treating the keratinous fiber with said composition; and
- wherein repairing a damaged keratinous fiber means increasing the  $\alpha$ -structure and/or tensile strength of the damaged keratinous fiber following treatment of the damaged keratinous fiber with said composition as compared to not treating the keratinous fiber with said composition.

33. The method according to [claim 30, wherein said C3 to C5 monosaccharides are chosen from aldopentoses and ketopentoses], wherein said aldopentoses are chosen from xylose, arabinose, lyxose, and ribose.

47. The method according to claim 30, wherein said composition further comprises at least one additional sugar, said at least one additional sugar being different from said C3 to C5 monosaccharides and derivatives thereof.

## 2. NEW MATTER

Claim 30 stands rejected under 35 U.S.C. § 112, first paragraph, on the basis that it contains new matter: The Examiner finds that the “recitation of ‘*at least*’ 45°C in instant claim 30 presents new matter since there is lack of support for this limitation in the present specification. While the limitation ‘*at 45°C*’ and ‘*at 130°C*’ is supported by the instant disclosure, the limitation ‘*at least*’ 45°C is not supported by the instant specification.” (Ans. 4.)

Appellants argue that the “at least 45°C” limitation is adequately supported because “the disclosure provides both the generic concept of protecting a keratinous fiber from extrinsic damage caused by heat, and working examples that include heating steps in which the keratinous fiber is heated to 45°C or 130°C” (App. Br. 15).

We agree with Appellants that the Examiner’s finding is not supported by the evidence of record. As Appellants point out, the Specification describes the disclosed method as effective in protecting against heat damage generically. The Specification states that “[k]eratinous fibers, especially hair, are constantly exposed to harsh extrinsic conditions such as . . . heat, *e.g.*, from hair dryers or curlers” (Spec. 1) and that the disclosed

method “protect[s] keratinous fibers from extrinsic damage, *e.g.*, disruption of the  $\alpha$ -structure, protein loss, and/or denaturing caused by exposure to heat chemicals, etc.” (*id.* at 5). The Specification also provides working examples that describe heat treatment of hair at both 45°C and 130°C (see, *e.g.*, *id.* at 24: hair treated with a flat hair iron at 130°C and hair “blow-dried, without application of the hot iron . . . referred to as treated at 45°C”).

“In order to satisfy the written description requirement, the disclosure as originally filed does not have to provide *in haec verba* support for the claimed subject matter at issue.” *Purdue Pharma L.P. v. Faulding, Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000). The written description requirement is met if the disclosure conveys with reasonable clarity to those skilled in the art that the inventor was in possession of the invention. *See id.*

We find that those of ordinary skill in the art would understand the Specification’s description to show possession of a method for treating heat damage generally, not a method for treating damage caused at the specific temperatures shown in the working examples. The rejection of claim 30 under 35 U.S.C. § 112, first paragraph, is reversed.

### 3. OBVIOUSNESS I

Claims 30-56 stand rejected under 35 U.S.C. § 103 as obvious in view of Wisotzki<sup>1</sup> combined with either Buheitel<sup>2</sup> or Naito.<sup>3</sup> The Examiner cites Wisotzki for its disclosure of “a method for the regeneration of hair split-ends and for caring for and revitalizing mistreated hair, comprising applying

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<sup>1</sup> Wisotzki et al., U.S. Patent 4,900,545, issued Feb. 13, 1990.

<sup>2</sup> Buheitel, U.S. Patent 6,116,250, issued Sept. 12, 2000.

<sup>3</sup> Naito et al., U.S. Patent 4,935,229, issued June 19, 1990.

to the hair, a treatment composition comprising mono- or disaccharides, more especially, the pentoses (5 C-atoms) and hexoses (6 C-atoms)” (Ans. 6). The Examiner also finds that Wisotzki specifically suggests the pentoses ribose, arabinose, and xylose, and suggests using sugars in amounts ranging from 0.1% to 8% by weight (*id.*).

The Examiner cites Buheitel and Naito, in the alternative, as suggesting the heat treatment recited in claim 30. The Examiner finds that Buheitel teaches a permanent hair shaping composition and process that includes heating the hair to 30°C to 55°C (Ans. 7) and that Naito teaches a permanent waving method that involves heating the hair to 40°C to 160°C (*id.* at 8). The Examiner concludes that it would have been obvious to those of ordinary skill in the art to combine the high-temperature treatment taught by either Buheitel or Naito with the method and composition taught by Wisotzki in order to produce “an enhanced method for the care of treated and untreated hair” (*id.* at 8) or to produce “an improved, gentle and non-irritating hair treatment method for use on both healthy and damaged hair” (*id.* at 9).

We agree with the Examiner that the claimed method would have been obvious in view of the cited references. Wisotzki teaches that a composition comprising at least one sugar (Wisotzki, col. 1, ll. 61-68) is useful for “revitalizing mistreated hair, more especially for regenerating hair damaged by split ends” (*id.* at col. 1, ll. 10-12). Wisotzki teaches that the sugars should be used in amounts ranging from 0.1% to 8.0% by weight (*id.* at col. 2, l. 28), and expressly suggests the pentoses ribose, arabinose, and xylose as useful in the composition (*id.* at col. 2, l. 40). Finally, Wisotzki

teaches that “any known hair care preparations in their typical composition are useful as carriers for the combination of active substances” (*id.* at col. 3, ll. 18-20).

Buheitel teaches a method for permanently shaping hair, which comprises contacting the hair with at least a “permanent shaping composition” (Buheitel, col. 1, l. 62) and preferably also a “balancing pre-wrap solution” (*id.* at col. 2, ll. 13-14), and later treated with “two alternative styling processes using higher temperatures in the range of 30° C.-55° C.” (*id.* at col. 5, ll. 40-42). Naito teaches a hair waving method that comprises treating the hair with a compound of a given formula (Naito, col. 1, ll. 45-68). Naito also teaches that the hair-treatment composition comprises materials to prevent damage to the hair (*id.* at col. 2, ll. 56-59) and that “when it is used as a heating one bath-type permanent waving agent,” the method includes heating to “40 to 160° C., preferably from 40 to 80° C.” (*id.* at col. 5, ll. 17-37).

It would have been obvious to a person of ordinary skill in the art to include the compounds disclosed by Wisotzki – including ribose, arabinose and/or xylose – in the hair-treating compositions used in the method taught by either Buheitel or Naito, because Wisotzki teaches that the active agents can be included in any hair care preparation and that the agents are effective in treating split ends.

Appellants argue that the Examiner “fails to provide a clear and particular reason to modify the teachings of the primary reference by including a heating step” (App. Br. 21). Appellants argue that the references

are not properly combined because they do not suggest that heating would be advantageous in Wisotzki's split end-repairing process (*id.* at 21-23).

This argument is unpersuasive. The prior art need not provide a "clear and particular" suggestion to combine teachings in order to support a *prima facie* case under § 103. *See KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007): "[T]he analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *See also id.* at 1741-42: "[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." Here, for the reasons discussed above, we agree with the Examiner that the cited references would have suggested the method defined by claim 30 to a person of ordinary skill in the art.

Appellants also argue that claim 30

define[s] "repair" . . . as "increasing the  $\alpha$ -structure and/or tensile strength of the damaged keratinous fiber following treatment of the damaged keratinous fiber with said composition as compared to not treating the keratinous fiber with said composition," which is different from the teaching of Wisotzki. As such, Wisotzki does not teach protecting keratinous fibers from extrinsic damage or repairing a keratinous fiber following extrinsic damage.

(Reply Br. 5.)

The preamble of claim 30 states that the method is for "protecting a keratinous fiber from extrinsic damage or repairing a keratinous fiber following extrinsic damage." The claim also defines the meaning of "protecting" and "repairing" a keratinous fiber. Appellants have not pointed



to any way, however, in which these recitations affect the compositions and manipulative steps recited in the body of the claim. The cited references would have made obvious a method of heating hair to the same temperature after applying the same sugar in the same amount; the method made obvious by the prior art therefore would reasonably appear to result in the same effects as the method of claim 30. Whether those effects were recognized in the prior art is immaterial to the question of whether the composition and manipulative steps recited in claim 30, which define the claimed method, would have been obvious.

With respect to claims 33-44, Appellants argue that the Examiner “provides no reason why the ordinary artisan would have been motivated to select any of th[e] recited sugars or sugar classes” (App. Br. 29). Appellants acknowledge that the Examiner pointed to Wisotzki’s disclosure of ribose, arabinose, and xylose, but argue that glucose is preferred by Wisotzki and therefore “the ordinary artisan would not have been motivated to select other sugars for inclusion in a method that is not the same as Wisotzki’s method”; that is, to select a non-preferred sugar and use it in a different method. (*Id.* at 29-30.)

This argument is also unpersuasive. Although Wisotzki teaches that glucose is preferred, it also teaches that any of a variety of sugars – pentoses, hexoses, monosaccharides, disaccharides, and mixtures of these sugars – are suitable for use in the disclosed method (Wisotzki, col. 2, ll. 36-49). A reference must be considered for everything it discloses, including nonpreferred embodiments. *See In re Burckel*, 592 F.2d 1175, 1179 (CCPA 1979). Here, Wisotzki would have suggested to those of skill in the art that

any of the disclosed sugars would have been effective in the disclosed method, and therefore would have suggested using any of them, including ribose, arabinose or xylose.

With respect to claims 47-50 and 52, Appellants argue that the Examiner “has not pointed to any teachings in [the cited references] that would motivate the ordinary artisan to include an additional sugar in the composition” (App. Br. 32). This argument is not persuasive because, as discussed above, Wisotzki specifically suggests using a mixture of sugars in the disclosed composition, and therefore adding another sugar in addition to ribose, arabinose, or xylose would have been an obvious modification.

In summary, we affirm the rejection of claims 30, 33, and 47. We also affirm the rejection of claims 31, 32, 34-46, and 48-56, because they were not argued separately. 37 C.F.R. § 41.37(c)(1)(vii).

#### 4. OBVIOUSNESS II

Claims 30-56 stand rejected under 35 U.S.C. § 103 as obvious in view of Koga<sup>4</sup> combined with either Buheitel or Naito. The Examiner relies on Koga’s disclosure of “a method for providing enhanced moisture retention and reducing excessive roughness and dryness of hair comprising the application of a xylobiose sugar composition to the hair (see Abstract)” (Ans. 12). Xylobiose is a sugar derivative (Spec. 13: “[E]xemplary derivatives . . . include . . . xylobiose”).

The Examiner also cites Koga’s disclosure that xylobiose can be incorporated into various hair care products and should be used in amounts of 0.0001 to 20 wt %, preferably 0.1 to 10 wt % (Ans. 12-13, citing Koga,

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<sup>4</sup> Koga et al., U.S. Patent 5,660,838, issued Aug. 26, 1997.

col. 2, ll. 14-26). As with the previous rejection under § 103, the Examiner relies on Buheitel or Naito in the alternative for teaching a step of heating to greater than 45°C, and concludes that it would have been obvious to combine the high-temperature treatment taught by either Buheitel or Naito with the method and composition taught by Koga in order to produce “an enhanced method for the treatment of hair” (*id.* at 8) or to produce “an effective and non-irritating hair treatment method” (*id.* at 9).

We agree with the Examiner that the cited references would have suggested the method of claim 30 to those of ordinary skill in the art. Koga teaches adding xylobiose to “hair-care products such as hair treatments, rinses and hair conditioners, and detergents such as hair shampoos” (Koga, col. 2, ll. 24-26), preferably in amounts of 0.1 to 10 wt % (*id.* at col. 2, ll. 35-36; col. 10, ll. 1-20). Koga teaches that the resulting compositions “are effective . . . in reducing excessive roughness and dryness of the hair to give a natural oiliness” (*id.* at col. 1, ll. 10-14).

As discussed previously, Buheitel and Naito teach methods for shaping and waving hair, respectively, that comprise treating the hair with certain compositions and then heating the hair to a temperature of 30°–55°C (Buheitel) or 40–160°C, preferably 40–80°C (Naito). It would have been obvious to a person of ordinary skill in the art to include xylobiose, as taught by Koga, in the hair-treating compositions used in the method taught by either Buheitel or Naito, because Koga teaches that xylobiose can be included in a variety of hair care products, and also teaches that xylobiose is effective in reducing roughness and dryness of hair.

Appellants argue that “[x]ylobiose is a disaccharide, not a monosaccharide as recited in the claims” (App. Br. 23). The Specification, however, expressly states that xylobiose is a sugar derivative, as recited in claim 30 (Spec. 13). See also claim 46 (“The method according to claim 30, wherein said at least one sugar is xylobiose”).

Appellants also argue that a person of ordinary skill in the art would not have been motivated to combine the teachings of Koga with those of Buheitel or Naito (App. Br. 25-26). For the reasons discussed above, we disagree. Koga teaches that adding xylobiose to hair treatment compositions provides the beneficial result of reducing dryness and roughness; a person of ordinary skill would have been led to add xylobiose to the compositions used in Buheitel’s or Naito’s process in order to impart the same property to those compositions.

Appellants also argue that “the Examiner mistakenly equates the methods for reducing dryness of hair to give a natural oiliness, as disclosed by Koga, with a protective process for improving damaged hair as claimed by Appellants. . . . Koga is silent with regards to preserving a greater degree of or increasing  $\alpha$ -structure and/or tensile strength of the keratinous fiber.” (Reply Br. 6.)

This argument is unpersuasive. As discussed above, Appellants have not pointed to any way in which the recitations of “protecting” or “repairing” a keratinous fiber affect the compositions and manipulative steps recited in the body of claim 30. Koga, combined with either Buheitel or Naito, would have made obvious a method of heating hair to the same temperature as in claim 30 after applying the same sugar in the same

amount. It is reasonable to expect, therefore, that the method made obvious by the prior art would result in the same effects as the method of claim 30. Even if the prior art references did not recognize those effects, they still would have made obvious a method comprising the composition and manipulative steps recited in claim 30.

With respect to claims 33-44, Appellants argue that “the narrow and xylobiose-specific teachings of *Koga* do not in any way suggest that other C3 to C5 monosaccharides could be substituted in the composition of *Koga*” (App. Br. 31).

We will reverse the rejection as it applies to claims 33-44. The Examiner points out that *Koga* teaches that the xylobiose-containing composition can also contain xylan-saccharified products other than xylobiose, such as xylose and xylotriose (Ans. 25). Claim 33, however, depends on claim 30, which requires a sugar (e.g., xylose) “present in an amount effective to protect . . . or repair” a keratinous fiber. *Koga* discloses that the xylobiose can be produced by a process that results as well in production of xylose and xylotriose, but does not provide any basis for concluding that the disclosed compositions inherently contained xylose in the amount required by the instant claims.

The Examiner also argues that the “art generically teaches that the use of sugars imparts advantageous results. The selection of suitable or effective sugars, including the species of sugars claimed by Appellant, would be obvious to one of ordinary skill in the art, based on the intended outcome” (Ans. 25). We think this overstates how the references would have been read by those of ordinary skill in the art. In any event, this rejection is based

only on Koga, Buheitel, and Naito, so the teachings of Wisotzki (discussed above) and Syed (discussed below) are not relevant to the argument as it applies to this rejection.

We agree with Appellants that the Examiner has not adequately explained how Koga, combined with either Buheitel or Naito, would have suggested the method defined by claims 33-44. The rejection is reversed with respect to those claims.

With respect to claims 47-50 and 52, Appellants argue that the Examiner “has not pointed to any teachings in [the cited references] that would motivate the ordinary artisan to include an additional sugar in the composition” (App. Br. 32). This argument is not persuasive because, as discussed above, Koga specifically suggests that the xylobiose-containing composition can also contain, among other things, xylose and xylotriose (Koga, col. 2, ll. 37-41). Koga also suggests the compositions can contain “saccharides” (*id.* at col. 3, l. 14). Claim 47 does not require any particular amount of the additional sugar, so Koga’s disclosure adequately suggests the method of claim 47.

In summary, we affirm the rejection of claims 30 and 47. We also affirm the rejection of claims 31, 32, 45, 46, and 48-56, because they were not argued separately. 37 C.F.R. § 41.37(c)(1)(vii). We reverse the rejection as applied to claims 33-44.

## 5. OBVIOUSNESS III

Claims 30-56 stand rejected under 35 U.S.C. § 103 as obvious in view of Syed<sup>5</sup> combined with either Buheitel or Naito. The Examiner finds that Syed “teaches a method for the reduction of hair damage and a process for relaxing hair fibers, comprising applying . . . a lanthionization<sup>[6]</sup> composition that comprises sugars” (Ans. 19). As before, the Examiner relies on either of Buheitel or Naito for teaching a step of heating to greater than 45°C, and concludes that it would have been obvious to combine the high-temperature treatment taught by either Buheitel or Naito with the method and composition taught by Syed in order to produce “an enhanced method for treating hair” (*id.* at 21) or to produce “a gentle, yet effective method of treating hair” (*id.* at 22).

Appellants argue that “[n]either Buheitel nor Naito involve a lanthionizing composition, as taught in Syed, so the methods of Buheitel and Naito are not analogous to the methods of Syed” (App. Br. 27) and the Examiner has not adequately explained why those skilled in the art would have combined the references (*id.* at 27-28).

We will reverse this rejection. Syed teaches a composition and method for straightening or relaxing curly hair, while Buheitel and Naito disclose compositions and methods for permanently shaping or waving hair. The desired effect on the hair is significantly different. Syed discloses that the “relaxing process operates primarily on the cystine,” or disulfide, bonds

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<sup>5</sup> Syed et al., U.S. Patent 5,641,477, issued June 24, 1997.

<sup>6</sup> “The chemical term for the hair relaxation process is lanthionization” (Syed, col. 1, ll. 27-28).

in the keratin of the hair fibers (Syed, col. 1, ll. 20-25). “When the cystine bonds are exposed to an alkaline relaxing solution, they are transformed to lanthionine bonds” (*id.* at 25-27). That is, the hair is relaxed as a result of the permanent conversion of the disulfide bonds to lanthionine bonds.

In permanent shaping or waving, by contrast,

[i]n the first step the cystine-disulfide-bridges of the hair keratin are unlocked by working in a preparation which contains an[ ] active reducing substance. . . . Then the hair is shaped as desired. In a second step, cystine-disulfide-compounds [sic, bonds] are closed again by use of a neutralizer, i.e. of a preparation containing oxidizing active substances.

(Buheitel, col. 1, ll. 4-10.) That is, the disulfide bonds are reversibly opened by reducing them (to a pair of –SH groups), the hair is shaped, and then that shape is maintained by forming new disulfide bonds via oxidation. The process disclosed by Buheitel follows these steps (Buheitel, col. 1, l. 57, to col. 2, l. 6). Naito discloses a similar process (Naito, col. 5, ll. 10-16). Naito also discloses a “heating one bath-type” process (*id.* at col. 5, ll. 17-46) but the effect again is to add waving to the hair, which requires breaking and re-forming disulfide bonds, rather than straightening the hair by permanently converting the disulfide bonds to lanthionine bonds.

Because hair that has been lanthionized cannot be re-shaped to provide permanent shaping or permanent waving, it would seem that using Syed’s composition in the method taught by Buheitel or Naito would defeat the purpose of the secondary references. We agree with Appellants that the Examiner has not provided an adequate basis for concluding that Syed, Buheitel, and Naito would have made the method of claim 30 *prima facie*



obvious. Claims 31-56 depend on claim 30. We therefore reverse the rejection of claims 30-56 based on Syed and either Buheitel or Naito.

SUMMARY

We reverse the rejection of claim 30 for containing new matter, the rejection of claims 33-44 based on Koga and Buheitel or Naito, and the rejection of claims 30-56 based on Syed and Buheitel or Naito. We affirm the rejection of claims 30-56 as obvious based on Wisotzki and either Buheitel or Naito, and the rejection of claims 30-32 and 45-56 as obvious based on Koga and either Buheitel or Naito.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

Ssc:

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